Corn Commodity Survey Work Plan
January 1, 2018 – December 31, 2018

Cooperator:	Kansas Department of Agriculture			
State:	Kansas			
Project:	Corn Commodity Survey			
Project funding source:	CAPS- Pest Detection Survey			
Project Coordinator:	Laurinda Ramonda			
Agreement Number	USDA-APHIS-10025-PPQFO000-18-0019			
Contact Information:	**Address:**	Plant Protection and Weed Control 6531 SE Forbes Avenue, Suite B, Topeka, Kansas 66619		
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This Work Plan reflects a cooperative relationship between the between the Kansas Department of Agriculture (the Cooperator) and the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine (PPQ). It outlines the mission-related goals, objectives, and anticipated accomplishments as well as the approach for conducting a Corn Commodity Survey and the related roles and responsibilities of the Kansas Department of Agriculture and USDA-APHIS-PPQ as negotiated.

I) OBJECTIVES AND NEED FOR ASSISTANCE

In 2015, Kansas planted over 4 million acres of corn with a value over 2 billion dollars comprising a ranking of 7th in the nation in production. The second largest corn crop in the state's history was harvested in 2015 and the largest was in 2013. With the export of corn grain increasing, there is concern over decreasing yields and phytosanitary regulations regarding pests.

Corn in Kansas is susceptible to a number of diseases and pests that can reduce quality and quantity. This project will provide the Kansas Department of Agriculture (KDA), Kansas State University (KSU) and the United States Department of Agriculture-Animal and Plant Health Inspection Service-Plant Protection and Quarantine (USDA-APHIS-PPQ), with information regarding the status of the target pests. This information can be used to determine appropriate response actions if positive finds are confirmed by USDA.

This detection survey will gather data to determine the status of Egyptian cottonworm (*Spodoptera littoralis*), cotton cutworm (*Spodoptera litura*), late wilt (*Harpophora maydis*), Java downy mildew (*Peronosclerospora maydis*), Philippine downy mildew

(*Peronosclerospora philippinensis*), Brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*) and Mexican corn cyst nematode (*Punctodera chalcoensis*) in Kansas.

This survey cannot be implemented without the funds provided by USDA-APHIS-PPQ.

II) RESULTS OR BENEFITS EXPECTED

The Cooperator seeks to conduct a program which is expected to result in:

- The ability to continue to export Kansas grown corn for the success of the states' grain industry.
- Reduction to the risk of economic hardship to the grain producers.
- Additional geographic assessment from data gathered.
- Identification, if present, of:
  Insect –Egyptian cottonworm (*Spodoptera littoralis*) and cotton cutworm (*Spodoptera litura*)
  Diseases – Late wilt (*Harpophora maydis*), Java downy mildew (*Peronosclerospora maydis*), Philippine downy mildew (*Peronosclerospora philippinensis*), and brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*), Bacterial leaf streak disease (*Xanthomonas vasicola* pv. *Vasculorum*)
  Nematode – Mexican corn cyst nematode (*Punctodera chalcoensis*)
- Protection to the state of Kansas from the introduction of Egyptian cottonworm, cotton cutworm, late wilt, Java downy mildew, Philippine downy mildew, Brown stripe downy mildew and Mexican corn cyst nematode.
- Identification of pathways of introduction to limit future infestations.
- Presence/absence data entered into the National Agricultural Pest Information System (NAPIS) data base.

III) APPROACH

What is the plan of action or approach to the work (for bundled survey work plans please include a separate paragraph for each survey detailing survey type, targets, and number of locations)?

This survey is the second year of a two year survey. For 2018, eighty-nine sites in the southern part of the state will be surveyed. One site/field for every 25,000 acres of corn will be surveyed. The forty-eight counties planned to be surveyed are Allen, Anderson, Barton, Bourbon, Butler, Cherokee, Coffey, Cowley, Crawford, Edwards, Finney, Ford, Franklin, Grant, Gray, Greeley, Hamilton, Harvey, Haskell, Hodgeman, Kearney, Kingman, Kiowa, Labette, Linn, Lyon, Marion, McPherson, Meade, Miami, Montgomery, Morton, Neosho, Osage, Pawnee, Pratt, Reno, Rice, Scott, Sedgwick, Seward, Stafford, Stanton, Stevens, Sumner, Wichita, Wilson and Woodson. The survey will be conducted with one temporary/seasonal staff and a KDA full time employee when needed. The temporary/seasonal employee will be trained and monitored by the State Entomologist, the State Plant Pathologist and State Survey Coordinator. Soil sampling will occur once at each field and disease and trap activities will occur monthly at each site during May to September.

Insects - Trapping for the Egyptian Cottonworm (*Spodoptera littoralis*) will occur from May through September at or within the edge of the corn fields. Plastic bucket traps with 1 dry

kill strips and sponge will be utilized with the *Spodoptera littoralis* lure. The kill strip is good for 1 month. The lure is effective for 84 days (3 months). The trap will be placed at least 65 feet away from other trap.

Trapping for the cotton cutworm (*Spodoptera litura*) will occur from May through September at or within the edge corn fields. Plastic bucket traps with a dry kill strip and sponge will be utilized with the *Spodoptera litura* lure. The kill strip is good for 1 month. The lure is effective for 84 days (3 months). The trap will be placed at least 65 feet away from other trap.

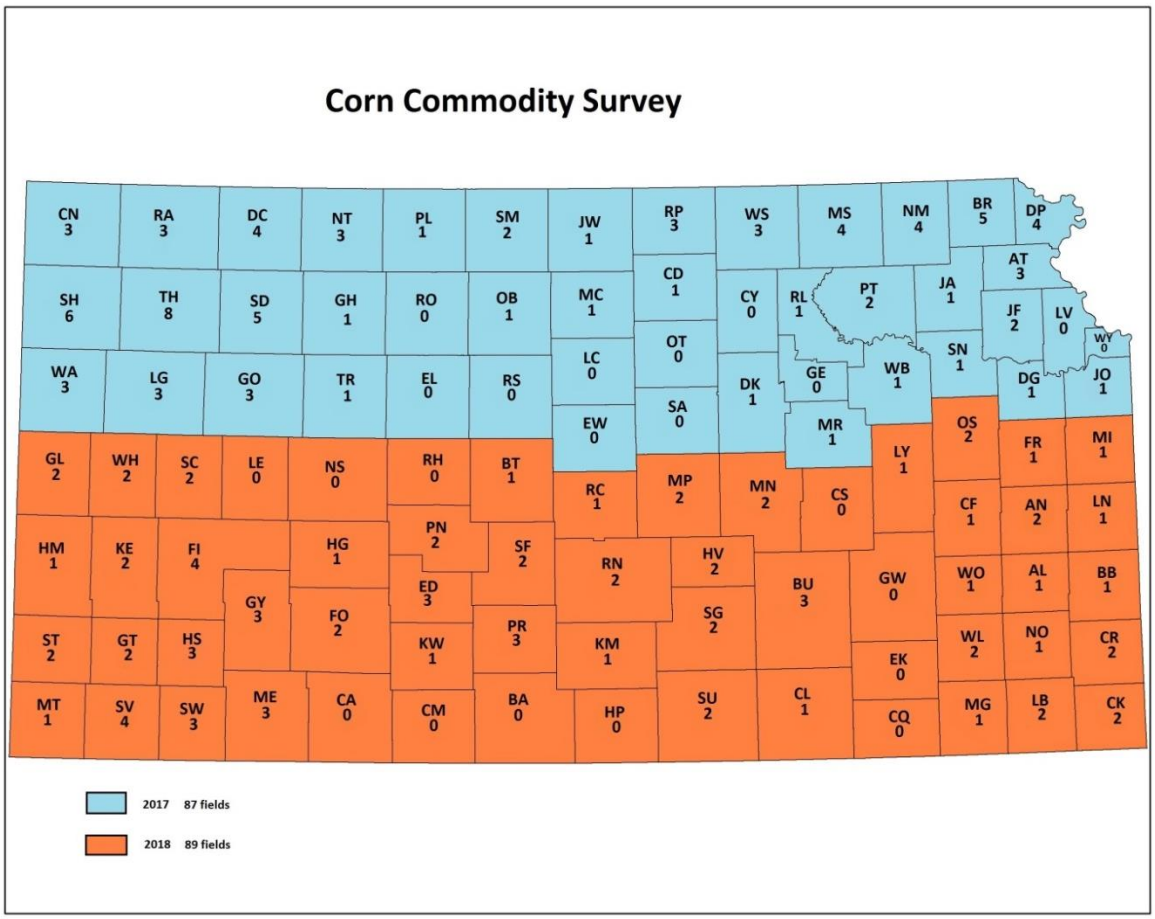
Diseases – late wilt (*Harpophora maydis*), Java downy mildew (*Peronosclerospora maydis*), Philippine downy mildew (*Peronosclerospora philippinensis*), Brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*), Bacterial leaf streak disease (*Xanthomonas vasicola* pv. *Vasculorum*) – May through September

If suspect disease is found then leaf samples will be taken, kept cool and sent to lab. Equipment will be cleaned with either alcohol swabs or 10% bleach solution.

Nematode - Mexican corn cyst nematode (*Punctodera chalcoensis*)
Collect one sample, during the survey, from each field approximately 100 feet from a road access point. Since local farm or custom equipment may move nematodes within an area, introduction into a field will likely occur near the access point. A sample of about one liter of soil will consist of 15-20 cores from probes in a two to three acre area. The probes will be taken within rows and will include feeder roots. Location will be documented by GPS coordinates. Clean equipment before moving to new field. Samples will be stored in coolers and analyzed at the Kansas State University Nematology Laboratory in the Plant Pathology Department at Manhattan, Kansas.

Soil samples will be thoroughly mixed and a sub-sample of 100 cc of soil will be processed with standard sieve selection methods for genus identification. Morphological and/or serological methods will be conducted by Tim Todd (nematologist, Kansas State University,) and Craig Webb, PhD., (USDA/APHIS/PPQ), identifier, Kansas State University Plant Pathology Department. The University of Nebraska Nematology Laboratory may also be utilized for specific nematode identification.

Other nematodes of interest to Kansas State University will also be identified.



Target Species	Survey Dates (Starting-Ending)	Number of Locations	Number of Traps, sweeps, samples taken	Number of Visits (Install, monitor, take down)	Total Number of Samples
Egyptian Cottonworm *Spodoptera littoralis*	May-September	89	89	5	712 possible
Cotton cutworm *Spodoptera litura*	May-September	89	89	5	712 possible
Late wilt *Harpophor maydis*	May-September	89	89	5	89 possible
Java downy mildew *Peronosclerospora maydis*	May-September	89	89	5	89 possible
Philippine downy mildew *Peronosclerospora philippinensis*	May-September	89	89	5	89 possible

Brown stripe downy mildew *Sclerophthora rayssiae var. zeae*	May-September	89	89	5	89 possible
Bacterial leaf streak disease *Xanthomonas vasicola* pv. *Vasculorum*	May-September	89	89	5	89 possible
Mexican corn cyst nematode *Punctodera chalcoensis*	May-June	89	89	1	89
Totals		**89**	**89**	**5**	**1,958 possible**

Scientific Name	Common Name	Survey Method	Trap	Lure
Spodoptera littoralis	Egyptian Cottonworm	Trapping	Bucket Trap	*Spodoptera littoralis*
Spodoptera litura	Cotton cutworm	Trapping	Bucket Trap	*Spodoptera litura*
Harpophor maydis	Late wilt	Visual	N/A	N/A
Peronosclerospora maydis	Java downy mildew	Visual	N/A	N/A
Peronosclerospora philippinensis	Philippine downy mildew	Visual	N/A	N/A
Sclerophthora rayssiae var. zeae	Brown stripe downy mildew	Visual	N/A	N/A
Xanthomonas vasicola pv. *Vasculorum*)	Bacterial leaf streak disease	Visual	N/A	N/A
Punctodera chalcoensis	Mexican corn cyst nematode	Soil Sampling	N/A	N/A

A. The Cooperator will:

- Document GPS coordinates for site locations.
- Maintain equipment used in this survey upon completion of project.
- Hire one temporary/seasonal staff person through a hiring agency that has a contract with the state to perform survey.
- Supply GPS equipment.
- Help train season staff and handle samples taken from field.
- Rent vehicle and supply a fuel card for travel to conduct survey and collect data.

1. By function, what work is to be accomplished?

- Survey will be performed by one temporary/seasonal person.

- Temporary/seasonal employee will be trained and monitored by the State Survey Entomologist, State Plant Pathologist and State Survey Coordinator.
- Data will be entered into the NAPIS database when pest identification is confirmed and/or becomes available.
- GPS coordinates will be included in surveys.
- Screening for target specimens will be performed by KDA.
- Suspect specimens will be sent to a qualified identifier.

2. What is the quantitative projection of accomplishments to be achieved?

a. By activity or function, what are the anticipated accomplishments by month, quarter, or other specified intervals?

- Trapping will occur from May through September with traps removed in August/September - trap deployment and visual surveillance months are dependent upon type of pest species and weather conditions.
- Fields checked monthly for diseases and to monitor traps.
- One soil sample per site/field will be taken.
- Fact sheets, webpage, resources, and pest reporting will be continually updated as new information becomes available.
- Data will be entered into the NAPIS database when pest identification is confirmed and/or becomes available.
- GPS coordinates will be included in surveys.
- Survey and identification of any exotic plant pests.
- Suspect target pests will be forwarded to a qualified identifier

b. What criteria will be used to evaluate the project? What are the anticipated results and successes?

- Pest detection survey activities completed.
- All data collected from the pest detection survey entered into the NAPIS database.
- SPHD, SPRO, PSS, and SSC meetings on survey issues, if needed.
- Presence or absence of target pests.
- Better knowledge of the pathways that are at high risk for the introduction and establishment of target pests.

3. What numbers and types of personnel will be needed and what will they be doing?

- One temporary/seasonal person to conduct survey.
- KDA permanent staff to help train seasonal employee.
- Data from survey entered into the NAPIS database by the State Survey Coordinator or KDA staff.
- KDA staff will screen target specimens.
- Qualified identifier for specimen identification (APHIS Identifier).

4. **What equipment will be needed to perform the work?** Include major items of equipment with a value of $5,000 or more.

   a. **What equipment will be provided by the cooperator?**
      - Computers
      - Microscopes and similar lab equipment

   b. **What equipment will be requested from APHIS on loan?**
      - None planned

   c. **What equipment will be purchased in whole or in part with APHIS funds?**
      - None planned

   d. **How will the equipment be used?**
      - Data entry, documentation, and analysis
      - Screening and identification of pests

   e. **What is the proposed method of disposition of the equipment upon termination of the agreement/project?** N/A

5. **Identify information technology equipment, e.g., computers, and their ancillary components.**
   Provided by KDA, office space with associated services and utilities, computers and other office equipment for the use of Cooperator personnel. These include GPS unit and computer with internet service.

6. **What supplies will be needed to perform the work?**

   - Shovel
   - Soil probe
   - Coolers
   - Ziploc bags
   - Ice packs
   - Hand lens
   - 70% ethanol
   - Vials
   - Alcohol swabs
   - Bleach
   - Squirt bottles
   - Pruners
   - Flagging tape
   - Alcohol proof pens, pens, tape, etc. (office supplies)
   - Buck traps
   - Kill strips
   - *Helicoverpa armigera* lure
   - *Spodoptera littoralis* lure
   - Fuel for rental vehicle

- Insect repellent

a. What supplies will be provided by the Cooperator?

- Shovels
- Soil probes
- Coolers
- Ice packs
- Hand lens
- Vials
- Pruners
- Bucket traps

b. What supplies will be requested from APHIS (list supplies)?

- *Helicoverpa armigera* lure
- *Spodoptera littoralis* lure
- Kill strips

c. What supplies will be purchased in whole or in part with APHIS funds?

- Ziploc bags
- Ice packs
- 70% ethanol
- Alcohol swabs
- Bleach
- Squirt bottles
- Flagging tape
- Alcohol proof pens, pens, tape, etc. (office supplies)
- Fuel for rental vehicle
- Insect repellent

d. How will the supplies be used?

- Planning, implementation, data collection and data submission of survey.
- Pest detection survey work.
- Shipping of specimens to identifiers or labs.

e. What is the proposed method of disposition of the supplies with a cumulative value over $5,000 upon termination of the agreement/project?

- None planned

7. What procurements will be made in support of the funded project and what is the method of procurement (e.g., lease, purchase)?

- Supplies for survey work.

- The Fiscal Department at the Kansas Department of Agriculture will provide most contracts.
- Seasonal employee will be employed by a temporary employment service that has a contract with the state.
- Most procurements will be made by purchase order.
- Some procurements will be made reimbursable personal expense.

8. **What are the travel needs for the project?**

   a. **Is there any local travel to daily work sites? Indicate rates and total costs in the Financial Plan.**

      - Travel will be required to survey sites by use of a rental vehicle (shortage of state vehicles).
      - Most procurements will be made by purchase order.
      - Some procurements will be made reimbursable personal expense.
      - The KDA Plant Protection and Weed Control Plant Program Manager is the approving official.
      - Costs are included in the financial plan.

   b. **What extended or overnight travel will be performed (number of trips, their purpose, and approximate dates)? Indicate rates and total cost in the Financial Plan.**

      - Overnight stays twelve times a month by seasonal staff.
      - This travel will occur because of the distance of survey work.
      - The KDA Plant Protection and Weed Control Plant Program Manager is the approving official.
      - Costs are included in the financial plan.

9. **Reports**:
   Submit all reports to the APHIS Authorized Department Officer's Designated Representative (ADODR). Reports include:

   a. Narrative accomplishment reports in the frequency and time frame specified in the Notice of Award, Article 4.

   b. Federal Financial Reports, SF-425 in the frequency and time frame specified in the Notice of Award, Article 4.

10. **Are there any <u>other</u> contributing parties who will be working on the project?**

    a. **If so, list other participating institutions/agencies who will work on the project:**

       - KDA
       - USDA-APHIS-PPQ
       - KSU

b. Describe the nature of their effort:

- KDA – trapping, training, screening, specimen collection, lure and trap maintenance (state entomologist, state plant pathologist, CAPS coordinator and temporary/seasonal employees)
- USDA-APHIS- PPQ – funding, support and pest identification
- KSU – nematode lab testing

B. APHIS Will:

1. Outline the Agency's (USDA APHIS PPQ) substantial involvement.

a. Include any significant Agency collaboration and participation

- Provide traps and lure.
- Provide funds to the Cooperator to cover costs outlined in the Financial Plan.
- Make arrangements for Taxonomic support in identification and sorting.

b. Project oversight and performance management

- Review of data results submitted to USDA approved database.
- Review data and submit accomplishment reports to ADODR.
- Provide training, when necessary

c. Provide the equipment requested by the cooperator in 4.b. & c.

- None planned

d. Provide the supplies requested by the cooperator in 6.b. & c.

- Wing traps
- *Helicoverpa armigera* lure
- *Spodoptera littoralis* lure
- Bucket traps
- Ziploc bags
- Ice packs
- 70% ethanol
- Alcohol swabs
- Bleach
- Squirt bottles
- Flagging tape
- Alcohol proof pens, pens, tape, etc. (office supplies)
- Fuel for rental vehicle
- Insect repellent

IV) GEOGRAPHIC LOCATION OF PROJECT

A. Is the project statewide or in specific counties? [List the names of ALL counties and tribal areas that apply (denote counties for each separate survey if this is a bundled survey work plan)].

Allen, Anderson, Barton, Bourbon, Butler, Cherokee, Coffey, Cowley, Crawford, Edwards, Finney, Ford, Franklin, Grant, Gray, Greeley, Hamilton, Harvey, Haskell, Hodgeman, Kearney, Kingman, Kiowa, Labette, Linn, Lyon, Marion, McPherson, Meade, Miami, Montgomery, Morton, Neosho, Osage, Pawnee, Pratt, Reno, Rice, Scott, Sedgwick, Seward, Stafford, Stanton, Stevens, Sumner, Wichita, Wilson and Woodson

B. What type of terrain (e.g., cropland, rangeland, woodland) will be involved in the project?

- Cropland

C. Are there any unusual geographic features which may have an impact on the project? (list all that apply)

- There could be many unusual features which may have an impact on the project or activity such as rivers, lakes, forests and wildlife sanctuaries.
- Areas might have disruption through human contact and dust, dirt and debris.
- Rattlesnakes and wildlife could have an impact on where to survey.

V) DATA COLLECTION AND MAINTENANCE

Each State is responsible for entering complete, accurate, and timely pest survey data using approved protocol and methodology. All survey data from Pest Detection funded CAPS surveys will be entered into the National Agricultural Pest Information System (NAPIS). NAPIS is the final repository for all Pest Detection survey data.

- First record for the State and/or County will be entered within **48 hours** of confirmation of identification by a qualified identifier.
- All other required records, both positive and negative survey data, must be entered **within two weeks** of confirmation.
- All records are to be entered into the NAPIS database by **December 31st** of the year of survey so these data can be included in the yearly Plant Board Report.

VI) TAXONOMIC SUPPORT

A. Person or Institution that will screen targets (Name & Contact Information) and level of screening/identification.

Diseases:
State Plant Pathologist
Kansas Department of Agriculture
Plant Protection and Weed Control

1320 Research Park Drive
Manhattan, Kansas 66502
(785) 564-6698

Insects:
State Entomologist
Kansas Department of Agriculture
Plant Protection and Weed Control
6531 SE Forbes Avenue, Suite B
Topeka, Kansas 66619
(785) 564-6698

Nematodes:
Tim Todd
Nematologist
Kansas State University
4746 Throckmorton Center
Manhattan, Kansas 66506
(785)- 532-1350
nema@ksu.edu

OR

B. ☒ Request for taxonomic support.

- Regional APHIS-PPQ identifier(s) diseases.

For Egyptian cottonworm (*Spodoptera littoralis*) and cotton cutworm (*Spodoptera litura*) identification:

Eric La Gasa
WA State Dept. of Agriculture
Plant Protection Division
1111 Washington St. SE
Olympia, WA 98504-2283
360-902-2063
ELaGasa@agr.wa.gov

VII) SURVEY SUMMARY FORM

A Survey Summary Form must be completed to summarize all CAPS surveys **funded by the Pest Detection line item.**

Bucket trap:
Egyptian Cottonworm (*Spodoptera littoralis*)
Cotton cutworm (*Spodoptera litura*)

Visual:
Late wilt (*Harpophora maydis*)

Java downy mildew (*Peronosclerospora maydis*)
Philippine downy mildew (*Peronosclerospora philippinensis*)
Brown stripe downy mildew (*Sclerophthora rayssiae* var. *zeae*)
Bacterial leaf streak disease (*Xanthomonas vasicola* pv. *Vasculorum*)

Soil Sampling:
Mexican corn cyst nematode (*Punctodera chalcoensis*)

VIII) SIGNATURES

ROAR	**Date**	**ADODR**	**Date**

Detailed Financial Plan

PROJECT: Corn Commodity
COOPERATOR NAME: Kansas Department of Agricultur**e**
AGREEMENT NUMBER: USDA-APHIS-10025-PPQFO000-18-0019
TIME PERIOD: January 1, 2018-December 31, 2018

Financial Plan must match the SF-424A, Section B, Budget Categories

ITEM			APHIS FUNDS	COOPERATOR FUNDS (Show even if zero)	TOTAL
PERSONNEL:	**Hours**	**Salary**			
KDA staff - Paid by Cooperator funds (based on average hourly wage for permanent employees)	15	$25	$0	$375	$375
Subtotal			**$0**	**$375**	**$375**
FRINGE BENEFITS:	**Percent** (enter as decimal not %)				
KDA staff - Paid by APHIS funds - 33%	0.33	375		$124	$124
Subtotal			**$0**	**$124**	**$124**
TRAVEL:	**Cost**	**Length of time**			
SUV rental for temporary staff for 4 months @ $979/month (shortage in state vehicles) *	$979	4	$3,916	$0	$3,916
Lodging 48 nights @ $85/night	85	48	$4,080	$0	$4,080
Meals for overnight travel @ $51 x 60 days	51	60	$3,060	$0	$3,060
Subtotal			**$11,056**	**$0**	**$11,056**
EQUIPMENT:	**Cost**				
			$0	$0	$0
Subtotal			**$0**	**$0**	**$0**
SUPPLIES:	**Cost**	**Length of time**			
70% alcohol, Ziploc bags, ice packs, alcohol swabs, bleach, squirt bottles, flagging tape, insect repellant, alcohol proof pens, pens, tape, etc.	$300		$300	$0	$300
Fuel - 7,160 miles/month x $2.50 per gallon/20 mpg for	$895	4	$3,580	$0	$3,580

rental vehicles*					
Traps and lure provided by USDA	$0		$0	$0	$0
Subtotal			**$3,880**	**$0**	**$3,880**
CONTRACTUAL:	**Cost**	**Length of time**			
Key Staffing (1 temporary staff) $20.00 x 640 hours (includes data entry time and trap prep)	$20	640	$12,800	$0	$12,800
KSU Lab fees for nematodes	$9,500		$9,500	$0	$9,500
Subtotal			**$22,300**	**$0**	**$22,300**
OTHER:	**Cost**				
Shipping samples to identifier	$100		$100	$0	$100
Subtotal			**$100**	**$0**	**$100**
TOTAL DIRECT COSTS			**$37,336**	**$499**	**$37,835**
INDIRECT COSTS **	**Percent** (enter as decimal not %)				
(18.1% on Total Direct Cost of salary and fringe benefits)*	0.181	499	**$0**	**$90**	**$90**
TOTAL			**$37,336**	**$589**	**$37,925**
COST SHARE INFORMATION (Percent)			**99%**	**1%**	

* There is a shortage of state vehicles. We give the option of renting a vehicle or using personally owned vehicles.

- If renting we pay for the fuel and if a personal vehicle is used we pay mileage.

** Kansas' Negotiated Cost Rate (Salary + Fringe Benefits x %=Indirect Cost)